



Project Description

Barrow Haven was famous for its bricks and tiles made from clay recovered from the edges of the Humber estuary. Flooding was a regular event amongst the workers' cottages. The tidal surges that affect the Humber estuary are greater today than the disastrous floods of February 1953. Since then extensive defence work has been undertaken, Barrow Haven continues to suffer badly. In one instance it is estimated to have caused flooding of around 2,600 properties. Key to the defence works is the protection of freshwater lagoons adjacent to the flood defences. These lagoons are supplied by underground springs for a fishery and irrigation ponds used for local agricultural land. Once seawater enters the lagoons they become contaminated with sea water rendering them useless for several years. The Environment Agency committed £650,000 to these risk based repairs along the south bank of the Humber, prioritising Barrow Haven in line with the Humber Flood Risk Management Strategy.

The Challenge

The works consisted of filling breaches in the existing flood embankment using clay as a core with compacted earth either side with varying gradients on the back face of typically at 1:2 and occasionally 1:1. The crest was raised along the full 600m length to allow for rising tide levels, reducing the likelihood of overtopping in a storm event. The challenge was to protect the back face of the embankment during flood events where water accelerates to 4m/s, with additional "slug" overtopping waves which are generated across the wide estuary potentially accelerating flow to 6m/s.

Project Information

Client	Environment Agency
Contractor	JN Bentley
Product	Erosamat 3/20Z 500M Abgrid 30/30
Quantity	8,500m ²
Benefits	<ul style="list-style-type: none">• Easy to handle and install• Long term protection to embankment• Open structure allowing grass to grow quickly



ABG Erosamat 3/20Z 500M

Erosion Control

Flood Embankment, Erosamat, Old Ferry Wharf, Barrow Haven, UK



Whilst well established grass can withstand a certain flow for a period of time, without reinforcement it is prone to weak spots resulting in damaging erosion issues.

The Solution

ABG Erosamat 3/20Z 500M was chosen by Halcrow as an open three-dimensional turf reinforcement mat anchored firmly at the top and bottom of the back face. Erosamat acts to mitigate the damaging effects of surface erosion in flood events. The grass roots entwines with the Erosamat to provide root anchorage and has been proven in high flow environments to extend the design flow event to many times more than unreinforced grass.

The ABG Service

ABG supplied technical advice on the limiting velocities, anchorage and pinning details for the design along with site assistance.



Topsoil is placed on the slope, overlain with Erosamat, pinned into place and secured by an anchor trench at the top and bottom of the slope. It is then seeded and buried with a thin layer of additional topsoil.



The embankment protects the freshwater lagoons on the other side of the sea defences.



The Erosamat and anchor trench is ready for backfilled with topsoil. ABG Abgrid biaxial geogrid was used to reinforce the crest which acted as an access road.

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